SV3-122B

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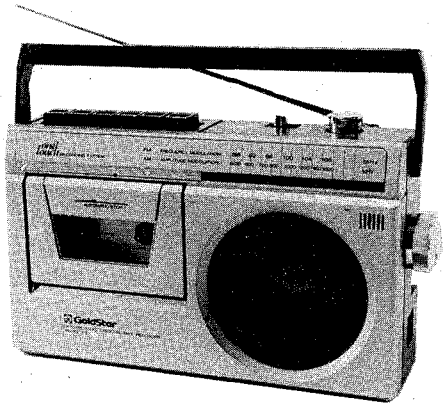
GoldStar Audio SERVICE MANUAL

for service technician



GoldStar

CASSETTE RECORDER with RADIO

TCR-122 (FM/MW/LW)

SPECIFICATIONS

This specifications may be changed for improvement of performance without notice.

Radio section

Circuit system	Superheterodyne AM/FM
Antenna	MW/LW : Ferrite ant. FM : Rod ant.
Frequency range	MW : 525-1605 kHz LW : 150-350 kHz FM : 88-109 MHz
Sensitivity	MW : 56 dB LW : 60 dB FM : 20 dB
Signal to noise ratio	AM : 36 dB FM : 50 dB

Cassette section

Circuit system	2 Track
Recording system	DC Bias
Erasure system	DC Erasure
Tape speed	4.75cm/sec
F.F. & REW time	100 sec
Wow & Flutter	0.2% WRMS
Frequency response	PB : 125-8000 Hz REC/PB : 125-8000 Hz
Signal to noise ratio	35 dB

General

Power output	1W
Power supply	AC : 220V DC : 6V ("C" cell 1.5x4)
Power consumption	3W
Semi-conductors	2IC's, 2TR's, 8 Diodes
Speaker	90mm (4Ω)
Weight	2kg (without batt.)
Dimensions	92(W)x202(H)x301(D)mm

Printed in Korea Nov. 1983

Caution: The graphical symbols on the schematic and the parts list diagram designates components which have special characteristics important for safety and should be replaced only with types identical to those in the original circuit.

The exclamation point within an equilateral triangle is intended to alert the user of the presence of important operating and maintenance (servicing) instructions in the literature accompanying the appliance.

To the service technician

The service manual contains detailed service information for Model TCR-122.
Illustration of the model appears on front cover.
Please give attention to next caution.
The following are the safety servicing guidelines for all audio amplifiers and radio receivers.
Service work should be performed only after you are familiar with all of the following safety guide.
To do otherwise increases the risk of potential hazards and injury to the user.

Safety guide

1. Be sure that all components are positioned in such a way to avoid possibility of adjacent components shorts. This is especially important on those chassis which are transported to and from the rapair shop.
2. Always replace all protective devices such as insulators and barriers after working on a receiver.
3. Check for frayed insulation on wires including the AC-cord. Also check across-the-line components for damage and replace if necessary.
4. All fuse and certain resistors and capacitors which are of the flameproof type must be replaced with exact same types to prevent potential fire hazard.
5. After re-assembly of the set always perform and AC-leakage test on the exposed metallic parts of the cabinet such as the knobs, antenna terminal, etc. to be sure the set is safe to operate without danger of electrical shock.

To order repair parts.

Parts order must contain;
1. Model Number—found front cover in this service manual.
2. Part Number, Description and Quantity

CONTENTS

DIAL CORD ARRANGEMENT

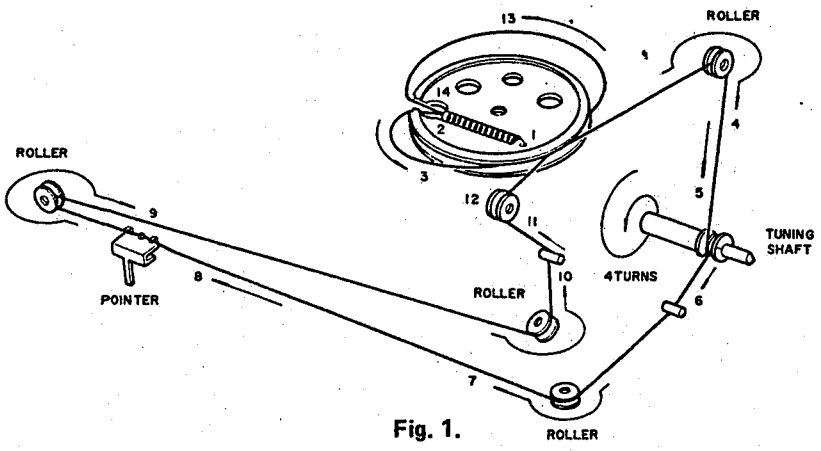


Fig. 1.

Set the varicon to minimum frequency and string the cord by following the number sequence order as shown in Fig. 1.

ALIGNMENT INSTRUCTIONS

This cassette radio has been aligned at the factory and normally will not require further adjustment. As a result, it is not recommended that any attempt is made modify any circuit. If any parts are replaced or if anyone tampers with the adjustment, realignment may be necessary.

Test equipment required

1. AM/FM signal generator
2. IF sweep generator (10.7MHz) for FM
3. IF sweep generator (455kHz) for AM
4. Standard dummy antenna for FM
5. Standard loop antenna for AM
6. VTVM
7. Oscilloscope
8. Frequency counter

Radio Alignment

Adjustment and test points

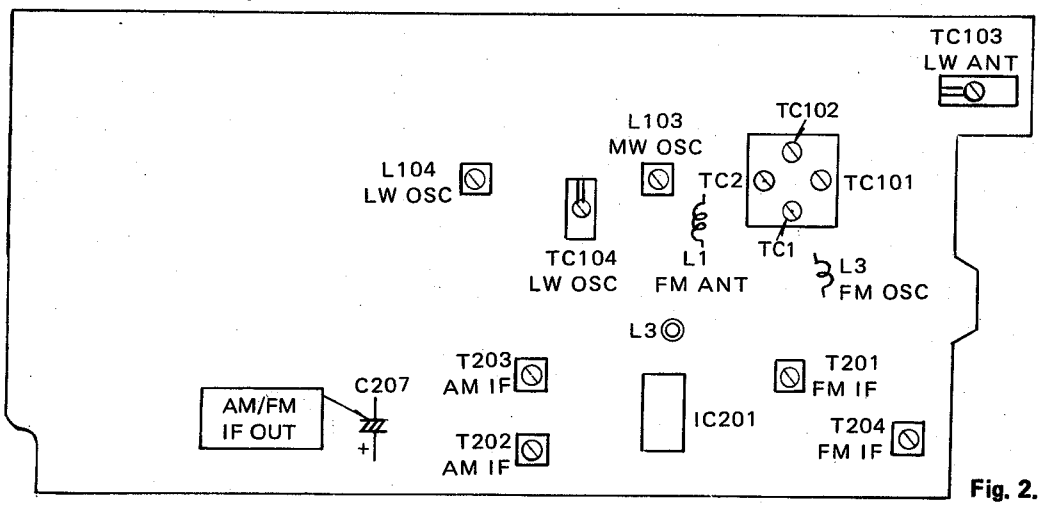


Fig. 2.

AM/FM Alignment Chart

Step	Item		Instrument Frequency	Test Point: Input Terminal	Test Point: Output Terminal	Dummy Ant.	Dial Setting	Adjustment Point	Purpose
1	AM-IF		AM IF sweep generator and oscilloscope or AM IF genescope	AM IF Input	Detector output (R203)	Generator output Probe "A"	Tuning Gang counter-clockwise (Lowest freq.)	T203 T202	Adjust for the scope Pattern with specified marker (IF freq.) as illustrated in fig. 3 (Note 1)
2	MW Oscilla-tor	a	AM SSG 515 kHz (400Hz, 30% Mod) and VTVM	MW wave magnet ant.	Speaker output terminal or detector output	None	Tuning-Gang counter-clockwise (Lowest freq.)	L103	
		b	AM SSG 1650 kHz (400Hz. 30% Mod) and VTVM				Tuning-Gang clockwise (Highest freq.)	TC102	Adjust for maximum gain.
		c	Repeat the above item 2-(a), (b) for minimum change.						
3	MW Track-ing	a	AM SSG 600 kHz (400Hz, 30% Mod) and VTVM	MW wave-magnet ant.	Speaker output terminal or detector output	None	Tune to signal	L101 MW ant. coil	Adjust for maximum gain.
		b	AM SSG 1400 kHz (400Hz, 30% Mod) and VTVM					TC101	
		c	Repeat the above item 3-(a), (b) for minimum change						
4	LW OSC	a	AM SSG 150 kHz (400Hz, 30% Mod) and VTVM	LW wave magnet ant.	Speaker output terminal or detector output	None	Tuning Gang fully counter clockwise (Lowest fre.)	L104	Adjust for maximum gain
		b	AM SSG 350 kHz and VTVM				Tunning gang fully clockwise (Highest fre.)	TC104	
		c	Repeat the above item 4-(a), (b) for minimum change.						

AM/FM Alignment Chart (Cont'd)

Step	Item		Instrument & Frequency	Test Point: Input Terminal	Test Point: Output Terminal	Dummy Ant	Dial Setting	Adjustment Point	Purpose
5	LW Tracking	a	AM SSG 160 kHz (400Hz, 30% Mod) and VTVM	LW wave magnet ant.	Speaker Output terminal or detector output	None	Tune to signal	L102 LW ant, coil	Adjust for maximum gain
		b	AM SSG 330 kHz (400Hz, 30% Mod) and VTVM					TC103	
		c	Repeat the above item 5-(a), (b) for minimum change.						
6	FM IF S-curve		FM IF sweep generator and oscilloscope or FM IF genescope	FM IF input	FM Det. output (R203)	Generator output	Tuning Gang fully counter clockwise	T201 T204	Adjust for scope pattern with specified marker (10.7 MHz) as illustrated in fig. 5,6 (note (2), (3))
7	FM oscillator	a	FM SSG 87 MHz (400Hz, 22.5kHz Dev.) and VTVM	Ant. input	Speaker output terminal	Generator output "Probe B"	Tuning Gang fully counter clockwise (Lowest freq.)	L3	Adjust for maximum gain
		b	FM SSG 109MHz (400Hz, 22.5kHz Dev.) and VTVM	Ant. input	Speaker output terminal	Generator output "Probe B"	Tuning Gang fully clockwise (Highest freq.)	TC1	Adjust for maximum gain
		c	Repeat the above item 7-(a), (b) for minimum change.						
8	FM Tracking	a	FM SSG 90MHz (400Hz, 22.5kHz (Dev.) and VTVM	Ant. input terminal	Speaker output terminal	Generator output "Probe B"	Tune to signal	L1	Adjust for maximum gain.
		b	FM SSG 106MHz (400Hz, 22.5kHz Dev.) and VTVM	Ant. input terminal	Speaker output terminal	Generator output "Probe B"	Tune to signal	TC2	Adjust for maximum gain.
		c	Repeat the above item 8-(a), (b) for minimum change.						

Note 1.: Adjust T203 and T202 to get maximum gain and symmetry in IF response as shown in Fig. 3

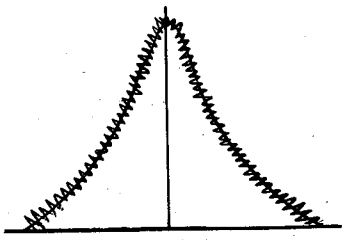


Fig. 3

IF response for weak input signal.

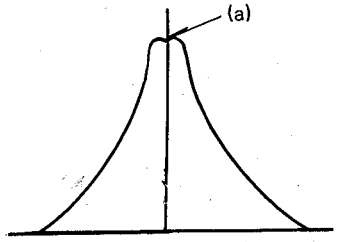


Fig. 4

IF response for strong input signal.

After adjusting IF response for weak input signal, supply strong signal and also adjust T203 and T202 to make part (a) flat as shown in Fig. 4.

Note. 2: Adjust output of sweep generator so that noise appears on IF-curve as shown in Fig. 5 below and adjust T201 for maximum indication.

Note 3.: Adjust T204 to be IF-curve into S-curve (See Fig.6) and adjust T204 so that declined part of S-curve has to be just linear.

If ceramic filter is used in RF part, adjust T204 so that part (A) and part (B) are symmetrical on either side of vertical line, because the marker of 10.7MHz on sweep generator is not on the center of S-curve.

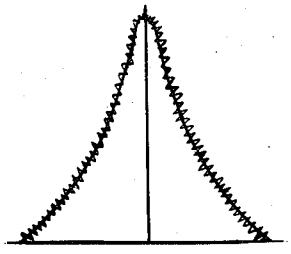


Fig. 5

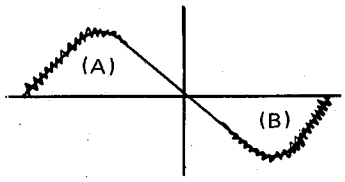
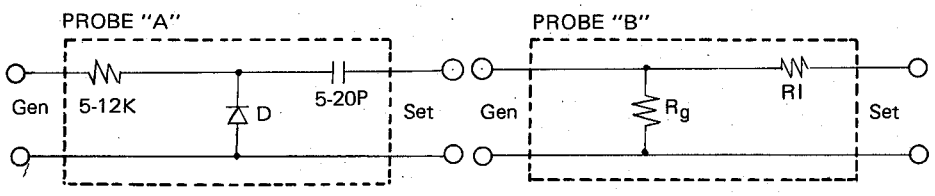


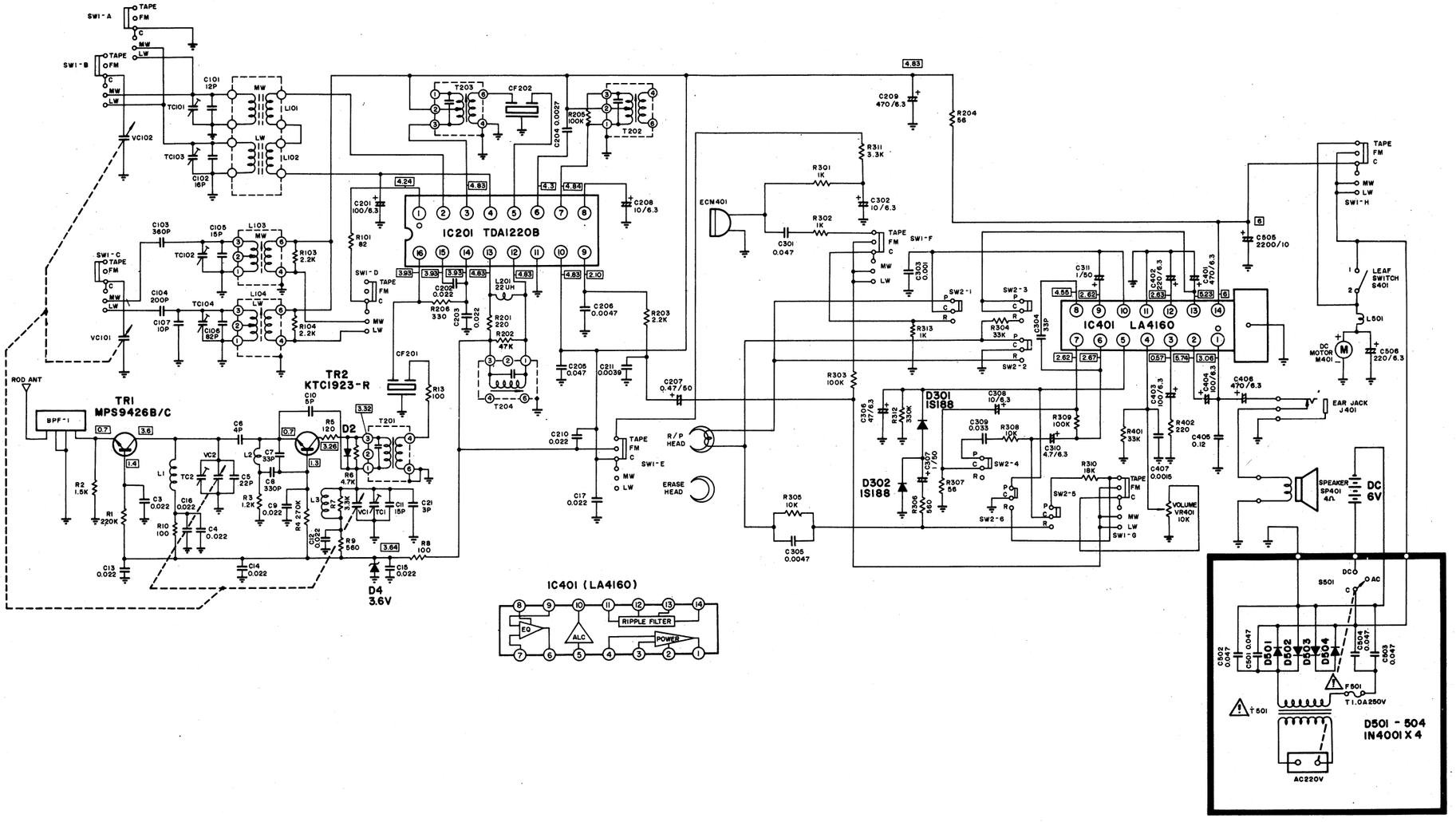
Fig. 6



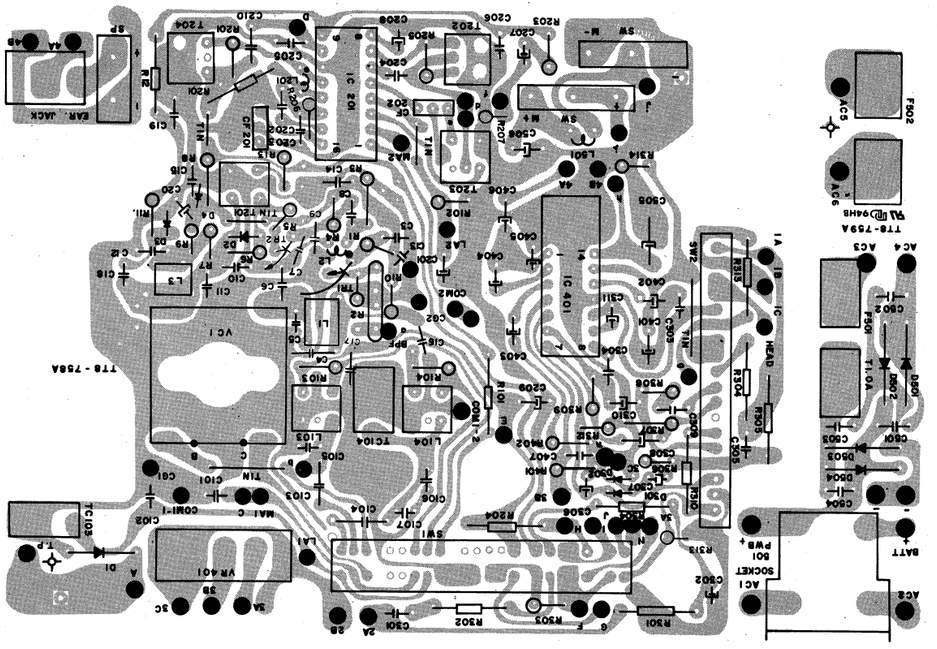
R_g : FM SSG Output

$Ri : 75 - \frac{Rg}{2}$

SCHEMATIC DIAGRAM



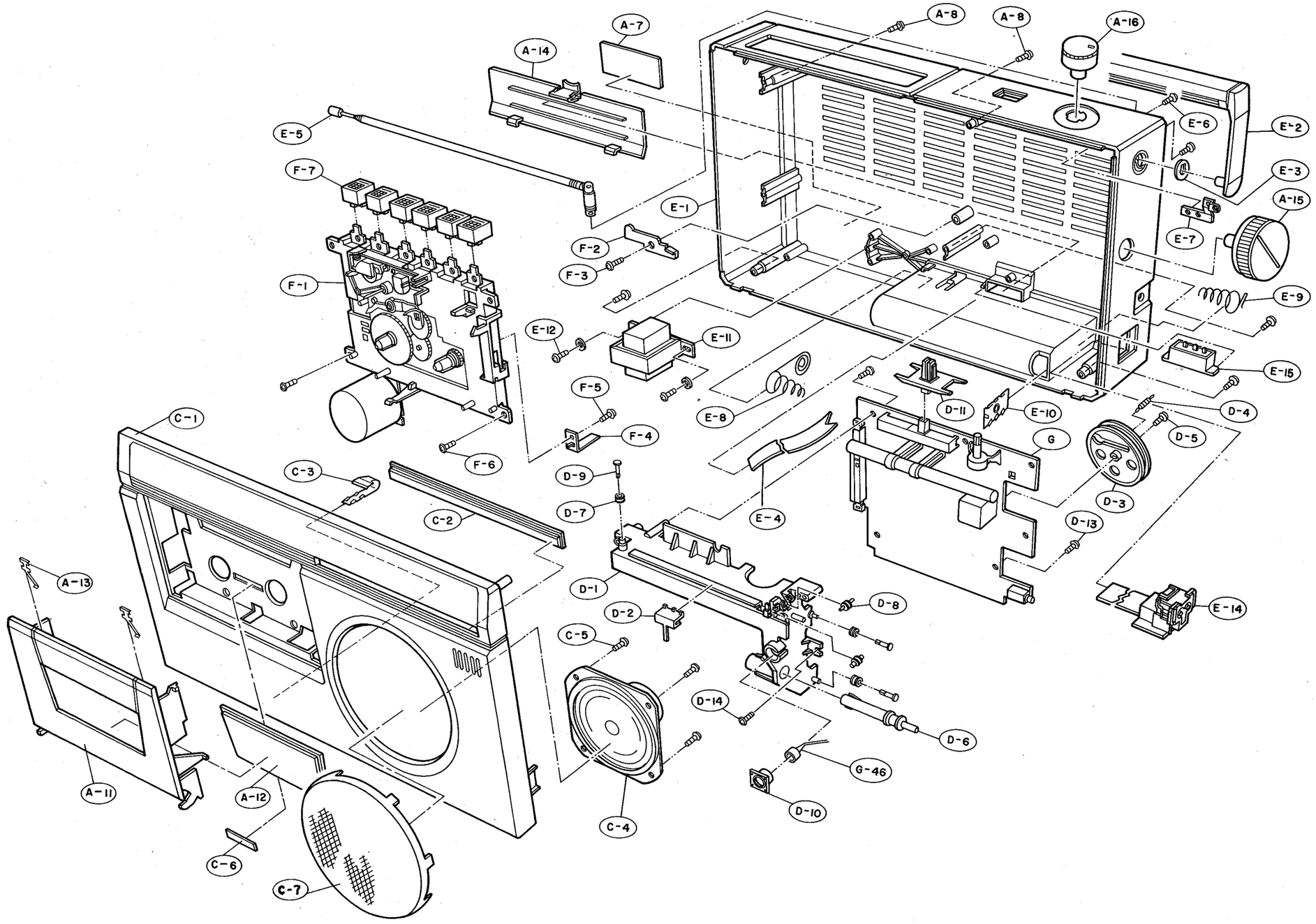
ELECTRICAL PARTS LOCATION



ELECTRICAL SERVICE PARTS LIST

SYMBOL NO	PART NO	DESCRIPTION
INTEGRATED CIRCUITS		
IC201	668-017A	IC, TDA1220B (AM/FM IF)
IC401	668-639A	IC, LA4160 (AUDIO)
TRANSISTORS AND DIODES		
TR1	662-601A	TR, MPS9426B
TR2	665-819A	TR, KTC1923R
D2	652-001C	DIODE, AM 1K60
D4	654-622G	DIODE, UZ-3.6B
D301, 302	651-001C	DIODE, AM1K60
D501, 502	652-005A	DIODE, 1N4001
D503, 504	652-005A	DIODE, 1N4001
COILS AND TRANSFORMERS		
L1	635-009H	COIL, FM RF
L2	635-602A	COIL, FM RF
L3	635-009U	COIL, FM OSC
L101, 102	632-203E	COIL, MW/LW ANT
L103	634-037K	COIL, MW OSC
L104	634-037L	COIL, LW OSC
L201	639-003T	COIL, PADDING 22μH
L501	639-003I	COIL, PADDING 4.7μH
T201	644-018F	TRANS, FM IF
T202	644-019E	TRANS, AM IF
T203	644-039M	TRANS' AM IF
T204	647-011F	DISCRIMINATOR
⚠ T501	641-671P	TRANS, POWER
MISCELLANEOUS		
SW1	552-627A	SWITCH-TAPE/FM/MW/LW
SW2	552N070A	SWITCH-REC/PLAY
VR401	611-648D	VR, K161A00-50KA
BPF-1	616-011A	FILTER, BAND PASS
CF201	616-007A	FILTER, CERAMIC SFE 10.7MAB
CF202	616-003E	FILTER, CERAMIC SFU 465B
VC1,2	622N048B	VARICON, POLY P2Z-22BPT
TC103,104	623N023H	TRIMMER, 20P
	542N023B	MIC, CONDENSER
⚠ F501	585-109B	FUSE, 1A

EXPLODED VIEW FOR CABINET



PARTS LIST FOR CABINET EXPLODED VIEW

This parts list is only applicable to Gold Star standard. Unless the set under service is Gold Star standard, be sure that all parts No's are subject to modifications.

SYMBOL NO	PART NO	DESCRIPTION	SYMBOL NO.	PART NO.	DESCRIPTION
A-8	353-067F	SCREW, SPECIAL	E	215-539A	CASE AY, REAR
A10	681-010A	CORD, POWER	E-1	217-321F	CASE, REAR
A-11	226-008A	CASE, CST	E-2	261-013A	HANDLE
A-12	236-007A	WINDOW, DOOR	E-4	455N002C	RIBBON, BATTERY
A-13	442-211A	SPRING, CST	E-5	532-006B	ANT, ROD
A-14	221-399C	COVER, BATTERY	E-6	MAC1839L	SCREW
A-15	271-145B	KNOB, TUNING	E-7	562-603A	LUG, ANT
A-16	272-607A	KNOB, VOLUME	E-8	442-703A	SPRING, BATTERY
C	215-538A	CASE AY, FRONT	E-9	442-703B	SPRING, BATTERY
C-1	217-006F	CASE, FRONT	E-10	256N404A	PLATE, BATTERY
C-2	236-172A	WINDOW, SCALE	E-11 ⚠	641-671P	TRANS, POWER
C-3	442-701A	SPRING	E-12	353-052C	SCREW
C-4	541-169C	SPEAKER	E-14	577-005B	SOCKET, 2P
C-5	353-052E	SCREW	F-1	412-069C	DECK (LE-20)
C-6	256-261E	PLATE, REFLECTION	F-2	321-530A	BRACKET, REC
C-7	224-002A	GRILL, SPEAKER	F-3	353-0520	SCREW
D	311-216A	CHASSIS AY	F-4	442-702A	SPRING, REC
D-1	313-243A	CHASSIS	F-5	353-022A	SCREW
D-2	361-610A	POINTER	F-6	353-025G	SCREW
D-3	431N088A	PULLEY DIAL	F-7	275-074A	BUTTON, DECK
D-4	442N073A	SPRING	G	511-758A	PWB AY
D-5	MPC1530J	SCREW	G-46	542N023B	MIC, CONDENSER
D-6	423-101A	SHAFT, TUNING			
D-7	434N003F	ROLLER			
D-8	434-018A	ROLLER			
D-9	423N254A	SHAFT, ROLLER			
D-10	341N045B	BUSHING, MIC			
D-11	272-345A	KNOB, S/W			
D-13	353-025G	SCREW			
D-14	TRQ1839J	SCREW			

SERVICE PARTS LIST FOR DECK MECHANISM

REF. NO	PART NO	DESCRIPTION	REF. NO	PART NO	DESCRIPTION
1.	99P-0061	LUG	35.	99P-0086	RUBBER CUSHION
2.	99P-0062	RP HEAD	36.	99P-0087	MOTOR BRACKET
3.	99P-0063	AUTO STOP LEVER	37.	99P-0088	MOTOR AY
4.	99P-0064	ARM SPRING	37-1	99P-0089	MOTOR PULLEY
5.	99P-0065	PINCH ARM AY	37-2	99P-0090	MOTOR
6.	99P-0066	E-HEAD BASE AY	39.	99P-0091	LEAF SWITCH
7.	99P-0067	C SPRING (HEAD)	40.	99P-0092	FR LEVER
8.	99P-0068	HEAD BASE	41.	99P-0093	LEVER HOLDER
9.	99P-0069	HEXAGON NUT	42.	99P-0094	C SPRING
11.	99P-0070	INTER LOCK	43.	99P-0095	C SPRING
12.	99P-0071	DOOR LOCK	44.	99P-0096	LEVER LOCK
13.	99P-0072	C-SPRING (BACK TENSION)	45.	99P-0097	ACTING PLATE
14.	99P-0073	S-REEL	46.	99P-0098	LEVER HOLDER
15.	99P-0074	T-REEL	47.	99P-0099	PAUSE ARM
16.	99P-0075	PLAY ARM	48.	99P-0100	C SPRING
17.	99P-0076	P-GEAR	49.	99P-0101	C SPRING (REC LEVER)
18.	99P-0077	F-GEAR	50.	99P-0102	PAUSE LEVER
20.	99P-0078	C-SPRING (HEAD BASE)	51.	99P-0103	P LEVER
24.	99P-0079	CASSETTE HOLDER	52.	99P-0104	F LEVER
27.	99P-0080	EARTH LUG	53.	99P-0105	R LEVER
30.	99P-0081	BELT	54.	99P-0106	REC LEVER
31.	99P-0082	CAPSTAN SUPPORT	55.	99P-0107	SE LEVER
32.	99P-0083	IDLER AY	56.	99P-0108	C SPRING
33.	99P-0084	FLYWHEEL AY	57.	99P-0109	WASHER OIL CUT
34.	99P-0085	SD SCREW	58.	99P-0110	C SPRING
			101.	99P-0111	TAPPING SCREW
			102.	99P-0112	BINDING SCREW 2x10

EXPLODED VIEW FOR DECK MECHANISM